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Central Intelligence Agency
Office of the Deputy Director for Intelligence

12 March 1986

NOTE TO: LTG John Moellering, USA
Assistant to the Chairman,
Joint Chiefs of Staff

John -

Further to our discussion at the CPPG on the Libyan oil system, I had our specialists take a look at the pumping stations and other aspects of the system.

I believe you will find the brief paper they have prepared of interest. (It does highlight the importance of the pumping stations.)

Bob

Robert M. Gates
Deputy Director for Intelligence

Attachment:
Libyan Oil System Targets

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12 March 1986

NOTE TO: The Honorable Richard L. Armitage
Assistant Secretary of Defense
(International Security Affairs)

Rich -

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Robert M. Gates
Deputy Director for Intelligence

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NOTE TO: The Honorable Michael H. Armacost
Under Secretary of State for
Political Affairs

Mike -

Further to our discussion at the CPPG on the Libyan oil system, I had our specialists take a look at the pumping stations and other aspects of the system. [redacted]

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Bob.

Robert M. Gates
Deputy Director for Intelligence

Attachment:
Libyan Oil System Targets

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NOTE TO: Donald R. Fortier
Deputy Assistant to the President
for National Security Affairs

Don -

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Robert M. Gates
Deputy Director for Intelligence

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Libyan Oil System Targets

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12 MAR 1986

Libyan Oil System Targets

Libya's oil network is divided into five systems feeding five oil export terminals (See Table 1). Although the systems are operated separately, several connections add flexibility by making it possible to divert crude oil from one system to another. The Libyan oil network also has considerable excess capacity, primarily in its export facilities and pipelines, because it was built to handle more than 3 million b/d--much larger than the 1.1 million b/d currently produced.

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Our analysis indicates key inland pump stations are the most attractive targets in the Libyan crude oil system. Although production facilities--such as gathering lines from wellheads, manifolds, and gas-oil separation equipment--are a key chokepoint in the network, they make a poor target because of their wide dispersal. Also, interconnections among pipeline systems and the large redundancy of export terminal capacity detract greatly from the attractiveness of targeting export facilities. Temporary export systems would be relatively easy to install and the Libyans would need to replace only a small portion of existing export capacity to return to current export levels.

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The loss of pump stations would cause the maximum disruption of exports for the longest period. Without the pump stations, the Libyans would be unable to deliver crude oil produced in the interior to the five export terminals. Their destruction would also eliminate any possibility to reroute crude from damaged export terminals to unaffected ones using existing pipeline connections or constructing new links at pipeline crossover points. Moreover, destruction of several major pump stations would require about seven months to replace.

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Table 1
Libyan Oil Production and Capacity
(thousand b/d)

System	Current Production	Maximum Sustainable Production	Excess Capacity	Terminal (& Capacity)
OASIS	400	600	200	Es Sider (1,000)
Occidental	285[a]	340	55	Zueitina (1,000)
AGECO	225	450	225	Marsa al Hariga (600)
Sirte (formerly Exxon)	125	135	10	Marsa al Brega (900)
VEBA (formerly Mobil)	65	75	10	Ras Lanuf (800)[b]
Total	1,100	1,600	500	Sirtica (4,300)

[a]Includes approximately 40,000 b/d of crude production exported from Ras Lanuf.

[b]The Ras Lanuf facility includes a seaside product terminal for the 220,000 b/d Ras Lanuf refinery and the nearby Sirtica offshore crude export terminal.

Critical Targets

Although Libya has more than 20 individual pump stations spread throughout its extensive production network, we have identified six critical pump stations, located within 100-300 miles of the coast, which can handle 75 percent of Libya's current productive capacity (Group I in Table 2). Their loss would reduce Libyan output below 40 percent of current levels. The loss would also eliminate all flexibility in the Libyan system to reroute significant volumes of crude oil. The elimination of four more pump stations (Group II) would reduce exports to 14 percent of current levels, and the loss of four additional pump stations (Group III) would essentially eliminate remaining capacity in the Libyan system. [redacted] 25X1

In our judgment, loss of the crude oil tank farms at Libya's five crude oil export terminals would have the most impact following destruction of the pump stations. Elimination of these tank farms would immediately stop any exports and complicate efforts to bring back partial exports as inland pumping stations are repaired. However, an alternative export system using a moored storage tanker probably could be installed and used in the interim. [redacted] 25X1

[redacted] 25X1

Table 2
Critical Libyan Pump Stations

	Export System	Maximum Production Lost
Group I		
Amal-Messla	Veba	275
Intisar A	Occidental	268
Sarir	AGECO (East)	200
Waha	OASIS	
Gialo	OASIS	460
Defa	OASIS	
Total		**1203**
% of Maximum Production Lost		75
% of current production Libya could maintain		36
Group II		
Zeltan	Sirte	86
Hofra	Occidental	60
Hamadah	AGECO (West)	50
110 KM	Sirte	49
Total		**245**
% of Maximum Production Lost (I & II)		90
% of current production Libya could maintain (I & II)		14
Group III		
Samah	OASIS	45
Bahi	OASIS	39
Dahra	OASIS	26
Zaggut	OASIS	5
Total		**115**
% of Maximum Production Lost (I & II & III)		98
% of current production Libya could maintain (I & II & III)		4

In addition to tank farms, destruction of other onshore equipment at export terminals--such as metering equipment, onshore pipeline manifolds, and shipping pumps and drivers would be disruptive to Libyan exports. Electrical generation facilities are important to the production and export of crude in the Oasis and the Occidental systems, and equipment to generate electrical power is located at the ports of Es Sider and Zueitina. However, we believe power generation equipment can be replaced fairly rapidly. Libya's 120,000 b/d domestic refining at Az Zawiyah near Tripoli and its 220,000 export refinery at Ras Lanuf are also important targets. However, their utility would be reduced while Libya's production system could not pump crude to them.

Recoverability

We believe that Libya probably has sufficient spare parts on hand or available through cannibalization to replace no more than two pump stations--replacement would take 8 to 12 weeks with foreign contractor assistance. Replacing any more than two would require going abroad for equipment, and would take at least seven months to complete repairs, Commercial acquisition procedures, logistical strains, and manpower shortages are the major factors involved in determining the length of time needed for replacement. While it is impossible to define precisely the amount of exports that could be shipped after partial repairs--and when they would be available--we believe that Libya could use its capability to rebuild up to two pump stations to restore about 400,000 b/d of exports within 8 to 12 weeks.

Libyan response to damage to tank farms at export terminals would most likely be some form of bypass operation. We believe down time would not exceed 30 days. Libya, among other options, could install a continuous loading operation using a very large crude carrier (VLCC) for storage and transshipping. We believe Libya would only attempt to repair two to three tanks--enough to handle current export levels. In our view, this rebuilding could be accomplished in seven months.

Loss of shipping pumps would not pose a major constraint. At current levels of exports Libya would need to replace only 2 to 3 shipping pumps at Zueitina to resume normal operations. Cannibalization would enable export operations to resume to current levels within 8 weeks.

Other Considerations

Air attacks against Libyan petroleum facilities probably would cause casualities that include non-Libyans. Most foreign oil workers are employed at drill sites in oilfields or in office

activities, primarily in the city of Brega. The number of workers at each pump stations is not large, probably no more than 30. We believe about five or fewer West European or Canadians would be working at each pump station. The number of workers at Libya's export terminals reportedly is much higher--probably in the range of 200-400, with foreigners probably representing 10-20 percent of the total. We believe a small number of Americans are still working in the Libyan oil industry, but we do not know where. Damages also would affect the interests of foreign companies. The Italian state oil company, AGIP, has a large equity position in Libya, producing 160,000 b/d of Bu Attifel crude exported from Zueitina. Veba-Gelsenberg and Wintershall also have equity positions in Libya, producing in total about 60,000 b/d of crude exported from the Ras Lanuf/Sirtica terminal.